

10/577476

ARGUMENTS/REMARKS

~~AP20050701~~ 27 APR 2006

In the Description:

As stated above, page 7 of the Description has been amended to correct a minor informality, namely, an erroneous numeral identifier. The "plug portion" of the present invention, which is identified with "24" was mistakenly identified with "26". The identifier has been corrected. Page 8 is included to insure continuity of the text. No new matter was added.

In the Claims:

Claims 11 and 12 of the present application have been renumbered. Old claim 12 is now claim 11 and old claim 11 is now claim 12. Dependent claims 13 and 14 have been amended to correct the claim number on which they depend. No new matter was entered.

Signed at Montreal, this 5 day of July 2005.

On behalf of the registrant,
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Encls: Description replacement sheet;
Claims replacement sheets;
Marked-up Description sheet showing changes;
Marked-up Claims sheets showing changes.

snugly fitted on opposite sides of the internal flow passage 20 and provides a seal between the plug portion 24 of the valving member 22 and the valve body 14.

As mentioned above, the stem or shaft portion 26 of the valving member 22 extends out of the body 14. In the illustration of FIG. 2, this extension is through an opening in the top of the valve body 14, and for purposes of the present description, this opening will be referred to as a top opening (although the valve could clearly be oriented differently). This top opening is covered with a top seal in a form of a diaphragm 38 which is aperatured to accommodate the stem portion of the valving member 22 which passes through the top seal/diaphragm 38. The top seal/diaphragm 38 will initially be described as having been formed of a fluorinated hydrocarbon polymer such as polytetrafluoroethylene or equivalent material. However, as will be highlighted below, the design of the top seal 38 is such to permit the use of a wide range of shapes and materials to meet a correspondingly wide range of applications.

The top seal 38 and the cooperating components of the valve 10 with which it interacts allow movement between the valve body 14 and the plug 22 to occur without interrupting the sealing function provided by the top seal 38. Plug portion 22 has a taper from the top of the plug (proximal to stem 26) to the lower portion of the plug (distal to the stem 26). This taper of the plug 24 allows for downward adjustability of the plug by increasing the pressure of tightening bolt 75 which in turn will apply pressure to the cam 65. Figure 6 downward adjustment of plug 22 relative to the body 14 increases the service pressure of the valve 10, permitting use of higher pressurized content without leakage. Increasing the surface pressure of the valve also increases the torque required to rotate the plug 22 relative to the body 14.

As illustrated in Figure 11, tightening of the seal tightening cam 65 applies a downward force on the thrust collar 50. This downward force is principally applied to the obliquely oriented bearing surface 54 which, in turn, applies a

force to the rotatable valving member 22 in a direction substantially perpendicular to that of the bearing surface 54. The result in the force applied to the rotating valving member 22 has two components, a first downward component and a second horizontal component. The two resulting components of force urge the top seal 38 in sealing engagement with both the stem portion 26 and the shoulder 80 of the rotatable valving member.

Figures 12-16 show another embodiment of the invention. In this embodiment, a stem sealing device 100 comprises a base 180, a seal 138, a thrust collar 150, a cam 165, a cover 182 and a bolt or screw 175.

The base 180 may be replaced by a similarly configured portion of the body of the object to be sealed. Bolts 188 are used to securely press the cover 182, the cam 165, the thrust collar 150 and the seal 138 to the base 180 and/or body.

The stem 126 is introduced in the central opening in the stem sealing device 100. Then the bolt/screw 175 is tightened as needed.

Figures 13-16 show the stem sealing device 100 in its minimum (A), intermediary (B) and maximum (C) compression positions.

Thus, it is apparent that there has been provided, in accordance with the invention, a top seal that fully satisfies the objects, aims and advantages set forth above. While the invention has been described in conjunction with a specific embodiment thereof, it is evident that many alternatives, modifications, and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alternatives, modifications, and variations as fall within the spirit and broad scope of the appended claims.

8. An adjustable sealing device as claimed in claim 7, wherein said pressing means comprises a bolt or screw acting on said cam.
9. An adjustable sealing device as claimed in claim 8, wherein said pressing means comprises a single bolt or screw.
10. An adjustable sealing means as claimed in claim 7, further comprising a thrust collar located between said cam and said seal and wherein the linear movement of said pressing means creates a rotational and vertical movement of said cam, said vertical movement pressing said cam against said thrust collar and said thrust collar against said seal.
11. An adjustable sealing device as claimed in claim 10, wherein said means to actuate said cam comprises a bolt or screw acting on said cam.
12. An adjustable sealing device for preventing the leakage of a substance contained in a containment device having a body and a stem, said sealing device comprising:
 - a. a cover having an aperture;
 - b. means to fasten said cover onto said containment device body;
 - c. a cam;
 - d. means to actuate said cam;
 - e. a generally circular seal;wherein said cam is rotatably fitted into said cover and wherein the linear movement of said actuating means creates a rotational and vertical movement of said cam, said vertical movement compressing said cam against said seal and said seal around said stem.
13. An adjustable sealing device as claimed in claim 12, wherein said means to actuate said cam comprises a single bolt or screw.

14. An adjustable sealing device as claimed in claim 12, further comprising a generally circular thrust collar located between said cam and said seal and wherein the linear movement of said actuating means creates a rotational and vertical movement of said cam, said vertical movement compressing said cam against said thrust collar, said thrust collar against said seal and said seal around said stem.
15. An adjustable sealing device for preventing the leakage of a substance contained in a containment device having a body and a stem, said sealing device comprising:
 - a. a cover having an aperture;
 - b. means to fasten said cover onto said containment device body;
 - c. a cam rotatably fitted into said cover;
 - d. means to actuate said cam;
 - e. a generally circular seal;wherein said cam has an angular lower portion, wherein said seal has a flat outer portion and an angular inner portion and wherein the linear movement of said means to actuate said cam creates a rotational and vertical movement of said cam, said vertical movement compressing said cam against said thrust collar, said thrust collar against said seal and said seal around said stem.
16. An adjustable sealing device as claimed in claim 15, wherein said means to actuate said cam comprises a bolt or screw acting on said cam.
17. An adjustable sealing device as claimed in claim 16, wherein said means to actuate said cam comprises a single bolt or screw.
18. An adjustable sealing device as claimed in claim 15, further comprising a generally circular thrust collar having a flat outer portion and an angular inner portion and located between said cam and said seal and wherein the linear movement of said actuating means creates a rotational and

vertical movement of said cam, said vertical movement compressing said cam against said thrust collar, said thrust collar against said seal and said seal around said stem.

19. An adjustable sealing device for preventing the leakage of a substance contained in a containment device comprising a cam, means to actuate said cam and a cam position indicator wherein the linear movement of said actuating means creates a rotational and vertical movement of said cam.